

#2
OIPE

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/873,409

DATE: 06/20/2001
TIME: 12:14:41

Input Set : A:\frank.ST25.txt
Output Set: N:\CRF3\06202001\I873409.raw

5 <110> APPLICANT: Frank, Markus
7 Sayegh, Mohamed
11 <120> TITLE OF INVENTION: A Gene Encoding a Multidrug Resistance Human P-Glycoprotein
12 Homologue on Chromosome 7p15-21 and Uses Thereof
16 <130> FILE REFERENCE: 81994/268611
C--> 20 <140> CURRENT APPLICATION NUMBER: US/09/873,409
C--> 20 <141> CURRENT FILING DATE: 2001-06-05
20 <160> NUMBER OF SEQ ID NOS: 19
24 <170> SOFTWARE: PatentIn version 3.0
28 <210> SEQ ID NO: 1
30 <211> LENGTH: 659
32 <212> TYPE: PRT
34 <213> ORGANISM: Homo sapiens
38 <400> SEQUENCE: 1
40 Met Leu Ala Glu Lys Gly Ala His Ala Glu Leu Met Ala Lys Arg Gly
41 1 5 10 15
43 Leu Tyr Tyr Ser Leu Val Met Ser Gln Asp Ile Lys Lys Ala Asp Glu
44 20 25 30
46 Gln Met Glu Ser Met Thr Tyr Ser Thr Glu Arg Lys Thr Asn Ser Leu
47 35 40 45
49 Pro Leu His Ser Val Lys Ser Ile Lys Ser Asp Phe Ile Asp Lys Ala
50 50 55 60
52 Glu Glu Ser Thr Gln Ser Lys Glu Ile Ser Leu Pro Glu Val Ser Leu
53 65 70 75 80
55 Leu Lys Ile Leu Lys Leu Asn Lys Pro Glu Trp Pro Phe Val Val Leu
56 85 90 95
58 Gly Thr Leu Ala Ser Val Leu Asn Gly Thr Val His Pro Val Phe Ser
59 100 105 110
61 Ile Ile Phe Ala Lys Ile Ile Thr Met Phe Gly Asn Asn Asp Lys Thr
62 115 120 125
64 Thr Leu Lys His Asp Ala Glu Ile Tyr Ser Met Ile Phe Val Ile Leu
65 130 135 140
67 Gly Val Ile Cys Phe Val Ser Tyr Phe Met Gln Gly Leu Phe Tyr Gly
68 145 150 155 160
70 Arg Ala Gly Glu Ile Leu Thr Met Arg Leu Arg His Leu Ala Phe Lys
71 165 170 175
73 Ala Met Leu Tyr Gln Asp Ile Ala Trp Phe Asp Glu Lys Glu Asn Ser
74 180 185 190
76 Thr Gly Gly Leu Thr Thr Ile Leu Ala Ile Asp Ile Ala Gln Ile Gln
77 195 200 205
79 Gly Ala Thr Gly Ser Arg Ile Gly Val Leu Thr Gln Asn Ala Thr Asn
80 210 215 220
82 Met Gly Leu Ser Val Ile Ile Ser Phe Ile Tyr Gly Trp Glu Met Thr
83 225 230 235 240
85 Phe Leu Ile Leu Ser Ile Ala Pro Val Leu Ala Val Thr Gly Met Ile
86 245 250 255
88 Glu Thr Ala Ala Met Thr Gly Phe Ala Asn Lys Asp Lys Gln Glu Leu

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See p.5

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89	260	265	270
91	Lys His Ala Gly Lys Ile Ala Thr Glu Ala Leu Glu Asn Ile Arg Thr		
92	275	280	285
94	Ile Val Ser Leu Thr Arg Glu Lys Ala Phe Glu Gln Met Tyr Glu Glu		
95	290	295	300
97	Met Leu Gln Thr Gln His Arg Asn Thr Ser Lys Lys Ala Gln Ile Ile		
98	305	310	315
100	Gly Ser Cys Tyr Ala Phe Ser His Ala Phe Ile Tyr Phe Ala Tyr Ala		
101	325	330	335
103	Ala Gly Phe Arg Phe Gly Ala Tyr Leu Ile Gln Ala Gly Arg Met Thr		
104	340	345	350
106	Pro Glu Gly Met Phe Ile Val Phe Thr Ala Ile Ala Tyr Gly Ala Met		
107	355	360	365
109	Ala Ile Gly Lys Thr Leu Val Leu Ala Pro Glu Tyr Ser Lys Ala Lys		
110	370	375	380
112	Ser Gly Ala Ala His Leu Phe Ala Leu Leu Glu Lys Lys Pro Asn Ile		
113	385	390	395
115	Asp Ser Arg Ser Gln Glu Gly Lys Lys Pro Asp Thr Cys Glu Gly Asn		
116	405	410	415
118	Leu Glu Phe Arg Glu Val Ser Phe Phe Tyr Pro Cys Arg Pro Asp Val		
119	420	425	430
121	Phe Ile Leu Arg Gly Leu Ser Leu Ser Ile Glu Arg Gly Lys Thr Val		
122	435	440	445
124	Ala Phe Val Gly Ser Ser Gly Cys Gly Lys Ser Thr Ser Val Gln Leu		
125	450	455	460
127	Leu Gln Arg Leu Tyr Asp Pro Val Gln Gly Gln Val Leu Phe Asp Gly		
128	465	470	475
130	Val Asp Ala Lys Glu Leu Asn Val Gln Trp Leu Arg Ser Gln Ile Ala		
131	485	490	495
133	Ile Val Pro Gln Glu Pro Val Leu Phe Asn Cys Ser Ile Ala Glu Asn		
134	500	505	510
136	Ile Ala Tyr Gly Asp Asn Ser Arg Val Val Pro Leu Asp Glu Ile Lys		
137	515	520	525
139	Glu Ala Ala Asn Ala Ala Asn Ile His Ser Phe Ile Glu Gly Leu Pro		
140	530	535	540
142	Glu Lys Tyr Asn Thr Gln Val Gly Leu Lys Gly Ala Gln Leu Ser Gly		
143	545	550	555
145	Gly Gln Lys Gln Arg Leu Ala Ile Ala Arg Ala Leu Leu Gln Lys Pro		
146	565	570	575
148	Lys Ile Leu Leu Asp Glu Ala Thr Ser Ala Leu Asp Asn Asp Ser		
149	580	585	590
151	Glu Lys Val Val Gln His Ala Leu Asp Lys Ala Arg Thr Gly Arg Thr		
152	595	600	605
154	Cys Leu Val Val Thr His Arg Leu Ser Ala Ile Gln Asn Ala Asp Leu		
155	610	615	620
157	Ile Val Val Leu His Asn Gly Lys Ile Lys Glu Gln Gly Thr His Gln		
158	625	630	635
160	Glu Leu Leu Arg Asn Arg Asp Ile Tyr Phe Lys Leu Val Asn Ala Gln		
161	645	650	655

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Input Set : A:\frank.ST25.txt
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163 Ser Val Gln
166 <210> SEQ ID NO: 2
168 <211> LENGTH: 812
170 <212> TYPE: PRT
172 <213> ORGANISM: Homo sapiens
176 <400> SEQUENCE: 2
178 Met Val Asp Glu Asn Asp Ile Arg Ala Leu Asn Val Arg His Tyr Arg
179 1 5 10 15
181 Asp His Ile Gly Val Val Ser Gln Glu Pro Val Leu Phe Gly Thr Thr
182 20 25 30
184 Ile Ser Asn Asn Ile Lys Tyr Gly Arg Asp Asp Val Thr Asp Glu Glu
185 35 40 45
187 Met Glu Arg Ala Ala Arg Glu Ala Asn Ala Tyr Asp Phe Ile Met Glu
188 50 55 60
190 Phe Pro Asn Lys Phe Asn Thr Leu Val Gly Glu Lys Gly Ala Gln Met
191 65 70 75 80
193 Ser Gly Gly Gln Lys Gln Arg Ile Ala Ile Ala Arg Ala Leu Val Arg
194 85 90 95
196 Asn Pro Lys Ile Leu Ile Leu Asp Glu Ala Thr Ser Ala Leu Asp Ser
197 100 105 110
199 Glu Ser Lys Ser Ala Val Gln Ala Ala Leu Glu Lys Ala Ser Lys Gly
200 115 120 125
202 Arg Thr Thr Ile Val Val Ala His Arg Leu Ser Thr Ile Arg Ser Ala
203 130 135 140
205 Asp Leu Ile Val Thr Leu Lys Asp Gly Met Leu Ala Glu Lys Gly Ala
206 145 150 155 160
208 His Ala Glu Leu Met Ala Lys Arg Gly Leu Tyr Tyr Ser Leu Val Met
209 165 170 175
211 Ser Gln Asp Ile Lys Lys Ala Asp Glu Gln Met Glu Ser Met Thr Tyr
212 180 185 190
214 Ser Thr Glu Arg Lys Thr Asn Ser Leu Pro Leu His Ser Val Lys Ser
215 195 200 205
217 Ile Lys Ser Asp Phe Ile Asp Lys Ala Glu Glu Ser Thr Gln Ser Lys
218 210 215 220
220 Glu Ile Ser Leu Pro Glu Val Ser Leu Leu Lys Ile Leu Lys Leu Asn
221 225 230 235 240
223 Lys Pro Glu Trp Pro Phe Val Val Leu Gly Thr Leu Ala Ser Val Leu
224 245 250 255
226 Asn Gly Thr Val His Pro Val Phe Ser Ile Ile Phe Ala Lys Ile Ile
227 260 265 270
229 Thr Met Phe Gly Asn Asn Asp Lys Thr Thr Leu Lys His Asp Ala Glu
230 275 280 285
232 Ile Tyr Ser Met Ile Phe Val Ile Leu Gly Val Ile Cys Phe Val Ser
233 290 295 300
235 Tyr Phe Met Gln Gly Leu Phe Tyr Gly Arg Ala Gly Glu Ile Leu Thr
236 305 310 315 320
238 Met Arg Leu Arg His Leu Ala Phe Lys Ala Met Leu Tyr Gln Asp Ile
239 325 330 335
241 Ala Trp Phe Asp Glu Lys Glu Asn Ser Thr Gly Gly Leu Thr Thr Ile

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Input Set : A:\frank.ST25.txt
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242	340	345	350
244	Leu Ala Ile Asp Ile Ala Gln Ile Gln Gly Ala Thr Gly Ser Arg Ile		
245	355	360	365
247	Gly Val Leu Thr Gln Asn Ala Thr Asn Met Gly Leu Ser Val Ile Ile		
248	370	375	380
250	Ser Phe Ile Tyr Gly Trp Glu Met Thr Phe Leu Ile Leu Ser Ile Ala		
251	385	390	395
253	400	405	410
254	Pro Val Leu Ala Val Thr Gly Met Ile Glu Thr Ala Ala Met Thr Gly		
256	415	420	425
257	Phe Ala Asn Lys Asp Lys Gln Glu Leu Lys His Ala Gly Lys Ile Ala		
259	430	435	440
260	Thr Glu Ala Leu Glu Asn Ile Arg Thr Ile Val Ser Leu Thr Arg Glu		
262	445	450	455
263	Lys Ala Phe Glu Gln Met Tyr Glu Glu Met Leu Gln Thr Gln His Arg		
265	460	465	470
266	Asn Thr Ser Lys Lys Ala Gln Ile Ile Gly Ser Cys Tyr Ala Phe Ser		
268	480	485	490
269	His Ala Phe Ile Tyr Phe Ala Tyr Ala Ala Gly Phe Arg Phe Gly Ala		
271	495	500	505
272	Tyr Leu Ile Gln Ala Gly Arg Met Thr Pro Glu Gly Met Phe Ile Val		
274	510	515	520
275	525	530	535
277	540	545	550
278	Leu Ala Pro Glu Tyr Ser Lys Ala Lys Ser Gly Ala Ala His Leu Phe		
280	555	555	555
281	Ala Leu Leu Glu Lys Lys Pro Asn Ile Asp Ser Arg Ser Gln Glu Gly		
283	560	565	570
284	575	580	585
286	590	595	600
287	Phe Phe Tyr Pro Cys Arg Pro Asp Val Phe Ile Leu Arg Gly Leu Ser		
289	605	605	605
290	Leu Ser Ile Glu Arg Gly Lys Thr Val Ala Phe Val Gly Ser Ser Gly		
292	610	610	615
293	620	625	630
295	640	635	640
296	645	645	650
298	655	655	655
301	Leu Phe Asn Cys Ser Ile Ala Glu Asn Ile Ala Tyr Gly Asp Asn Ser		
302	660	660	665
304	670	675	680
305	685	685	685
307	Ile His Ser Phe Ile Glu Gly Leu Pro Glu Lys Tyr Asn Thr Gln Val		
308	700	690	695
310	720	705	710
311	720	725	730
313	735	735	735
314			

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Input Set : A:\frank.ST25.txt
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316 Ala Thr Ser Ala Leu Asp Asn Asp Ser Glu Lys Val Val Gln His Ala
317 740 745 750
319 Leu Asp Lys Ala Arg Thr Gly Arg Thr Cys Leu Val Val Thr His Arg
320 755 760 765
322 Leu Ser Ala Ile Gln Asn Ala Asp Leu Ile Val Val Leu His Asn Gly
323 770 775 780
325 Lys Ile Lys Glu Gln Gly Thr His Gln Glu Leu Leu Arg Asn Arg Asp
326 785 790 795 800
328 Ile Tyr Phe Lys Leu Val Asn Ala Gln Ser Val Gln
329 805 810
331 <210> SEQ ID NO: 3
333 <211> LENGTH: 131
335 <212> TYPE: PRT
337 <213> ORGANISM: Homo sapiens
341 <400> SEQUENCE: 3
343 Met Val Asp Glu Asn Asp Ile Arg Ala Leu Asn Val Arg His Tyr Arg
344 1 5 10 15
346 Asp His Ile Gly Val Val Ser Gln Glu Pro Val Leu Phe Gly Thr Thr
347 20 25 30
349 Ile Ser Asn Asn Ile Lys Tyr Gly Arg Asp Asp Val Thr Asp Glu Glu
350 35 40 45
352 Met Glu Arg Ala Ala Arg Glu Ala Asn Ala Tyr Asp Phe Ile Met Glu
353 50 55 60
355 Phe Pro Asn Lys Phe Asn Thr Leu Val Gly Glu Lys Gly Ala Gln Met
356 65 70 75 80
358 Ser Gly Gly Gln Lys Gln Arg Ile Ala Ile Ala Arg Ala Leu Val Arg
359 85 90 95
361 Asn Pro Lys Ile Leu Ile Leu Asp Glu Ala Thr Ser Ala Leu Asp Ser
362 100 105 110
364 Glu Ser Lys Ser Ala Val Gln Ala Ala Leu Glu Lys Asp Thr Pro Arg
365 115 120 125
367 Tyr Ser Phe
368 130
370 <210> SEQ ID NO: 4
372 <211> LENGTH: 1058
374 <212> TYPE: PRT
376 <213> ORGANISM: Homo sapiens
380 <220> FEATURE:
W--> 382 <221> NAME/KEY: Note
384 <222> LOCATION: (66)..(66) /
386 <223> OTHER INFORMATION: Xaa at position 66 represents any L amino acid
392 <400> SEQUENCE: 4
394 Met Val Ile Ser Leu Thr Ser Lys Glu Leu Ser Ala Tyr Ser Lys Ala
395 1 5 10 15
397 Gly Ala Val Ala Glu Glu Val Leu Ser Ser Ile Arg Thr Val Ile Ala
398 20 25 30
400 Phe Arg Ala Gln Glu Lys Glu Leu Gln Arg Ser Phe Leu Leu Asn Ile
401 35 40 45
403 Thr Arg Tyr Ala Trp Phe Tyr Phe Pro Gln Trp Leu Leu Ser Cys Val

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

VERIFICATION SUMMARY
PATENT APPLICATION: US/09/873,409

DATE: 06/20/2001
TIME: 12:14:42

Input Set : A:\frank.ST25.txt
Output Set: N:\CRF3\06202001\I873409.raw

L:20 M:270 C: Current Application Number differs, Replaced Current Application No
L:20 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:382 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:4
L:406 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4
L:607 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:5
L:661 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5
L:1105 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:7
L:1159 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7
L:1584 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:12
L:1601 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:1714 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:13
L:1749 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13
L:1996 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:15
L:2031 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15